

ABSTRACT

The present invention relates to improved catalyst compositions, as well as methods of making and using such compositions. Preferred embodiments of the present invention comprise catalyst compositions having high melting point metallic alloys, and methods of preparing and using the catalysts. In particular, the metallic alloys are preferably rhodium alloys. Accordingly, the present invention also encompasses an improved method for converting a hydrocarbon containing gas and an atomic oxygen-containing gas to a gas mixture comprising hydrogen and carbon monoxide, *i.e.*, syngas, using the catalyst compositions in accordance with the present invention. In addition, the present invention contemplates an improved method for converting hydrocarbon gas to liquid hydrocarbons using the novel syngas catalyst compositions described herein.